

AD-A020 874

SPECIAL DATA COLLECTION SYSTEM EVENT REPORT.  
NTS EVENT 'MIZZEN', 3 JUNE 1975

J. R. Woolson, et al

Teledyne Geotech

Prepared for:

Air Force Technical Applications Center

23 September 1975

DISTRIBUTED BY:

**NTIS**

National Technical Information Service  
U. S. DEPARTMENT OF COMMERCE

ADA020874

057175

SDCS-ER-75-22

**SPECIAL DATA COLLECTION SYSTEM EVENT REPORT**  
**NTS Event "MIZZEN", 3 June 1975**

**J.R.Woolson, D.D.Solari, M.S.Dawkins, K.J.Hill, and R.J.Markle**  
**Alexandria Laboratories**  
**Teledyne Geotech, 314 Montgomery Street, Alexandria, Virginia 22314**

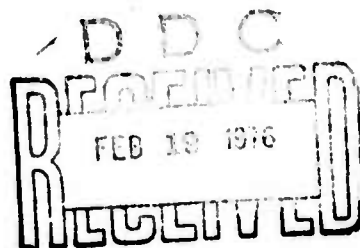
**September 1975**

**APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.**

**Sponsored By**  
**The Defense Advanced Research Projects Agency**  
**Nuclear Monitoring Research Office**  
**1400 Wilson Boulevard, Arlington, Virginia 22209**  
**ARPA Order No. 2897**

**Monitored By**  
**VELA Seismological Center**  
**312 Montgomery Street, Alexandria, Virginia 22314**

Reproduced by  
**NATIONAL TECHNICAL**  
**INFORMATION SERVICE**  
U S Department of Commerce  
Springfield VA 22151



Disclaimer: Neither the Defense Advanced Research Projects Agency nor the Air Force Technical Applications Center will be responsible for information contained herein which has been supplied by other organizations or contractors, and this document is subject to later revision as may be necessary. The views and conclusions presented are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Defense Advanced Research Projects Agency, the Air Force Technical Applications Center, or the US Government.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

| REPORT DOCUMENTATION PAGE                                                                                                                                                 |                       | READ INSTRUCTIONS<br>BEFORE COMPLETING FORM                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------|
| 1. REPORT NUMBER<br>SDCS-ER-75-22                                                                                                                                         | 2. GOVT ACCESSION NO. | 3. RECIPIENT'S CATALOG NUMBER                                           |
| 4. TITLE (and Subtitle)<br>SPECIAL DATA COLLECTION SYSTEM (SDCS)<br>NTS Event "MIZZEN", 3 June 1975                                                                       |                       | 5. TYPE OF REPORT & PERIOD COVERED<br>Technical                         |
| 7. AUTHOR(s)<br>Woolson, J. R., Solari, D. D., Dawkins, M. S.,<br>Hill, K. J. and Markle, R. J.                                                                           |                       | 6. PERFORMING ORG. REPORT NUMBER                                        |
| 9. PERFORMING ORGANIZATION NAME AND ADDRESS<br>Teledyne Geotech<br>314 Montgomery Street<br>Alexandria, Virginia 22314                                                    |                       | 8. CONTRACT OR GRANT NUMBER(s)<br>F08606-74-C-0013                      |
| 11. CONTROLLING OFFICE NAME AND ADDRESS<br>Defense Advanced Research Projects Agency<br>Nuclear Monitoring Research Office<br>1400 Wilson Blvd.-Arlington, Virginia 22209 |                       | 10. PROGRAM ELEMENT PROJECT, TASK<br>AREA & WORK UNIT NUMBERS<br>T/4703 |
| 14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)<br>VELA Seismological Center<br>312 Montgomery Street<br>Alexandria, Virginia 22314           |                       | 12. REPORT DATE<br>23 September 1975                                    |
|                                                                                                                                                                           |                       | 13. NUMBER OF PAGES<br>25                                               |
|                                                                                                                                                                           |                       | 15. SECURITY CLASS. (of this report)<br>Unclassified                    |
|                                                                                                                                                                           |                       | 15a. DECLASSIFICATION DOWNGRADING<br>SCHEDULE                           |
| 16. DISTRIBUTION STATEMENT (of this Report)<br><br>APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.                                                                   |                       |                                                                         |
| 17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)                                                                                |                       |                                                                         |
| 18. SUPPLEMENTARY NOTES                                                                                                                                                   |                       |                                                                         |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)                                                                                        |                       |                                                                         |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)                                                                                         |                       |                                                                         |

|                 |         |
|-----------------|---------|
| SEARCHED        | INDEXED |
| SERIALIZED      | FILED   |
| OCT 1975        |         |
| FBI - ARLINGTON |         |
| BY [signature]  |         |

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

SDCS Event Report No. 22

NTS Event "MIZZEN", 3 June 1975

This event report contains seismic data from the Special Data Collection System (SDCS), and other sources for the above event. Published epicenter information from seismic observations is:

|        | Origin Time | Latitude | Longitude | $m_b$ | $M_s$ |
|--------|-------------|----------|-----------|-------|-------|
| NORSAR | 14:40:07    | 38 N     | 116 W     | 5.6   | N/A   |
| LASA   | 14:40:01    | 37.0N    | 116.0W    | 5.3   | N/A   |

Using SDCS stations, LASA and NORSAR, the epicenter location and magnitudes become

|          |       |        |     |     |
|----------|-------|--------|-----|-----|
| 14:40:02 | 37.2N | 116.0W | 5.4 | 4.3 |
|----------|-------|--------|-----|-----|

Short-period signals associated with this event were recorded at all SDCS stations, LASA and NORSAR.

Long-period signals were recorded at all SDCS stations, LASA, ALPA and NORSAR. The LP vertical channel magnification at HN-ME is unknown due to calibration problems. The gains of the horizontal LP instruments at RK-ON are unknown due to erratic calibration amplitudes. The long-period array beam data for LASA was not recoverable.

Details of the program used to obtain beamed vertical, radial and transverse long-period data at LASA, ALPA and NORSAR are in the process of being reviewed. Vertical beams are probably valid while horizontal beams are questionable.

Scaling factors on plots are millimicrons at 1 Hz (not corrected for instrument response) with the exception of LASA and NORSAR short-period plots. LASA SP scaling factors are millimicrons per inch. Scaling factors are not reported for NORSAR short-period.

## STATION DESCRIPTION

| SITE<br>CODE | LOCATION                   | SITE COORDINATES |                         | ELEVATION<br>METERS | INSTRUMENTATION  |                    |
|--------------|----------------------------|------------------|-------------------------|---------------------|------------------|--------------------|
|              |                            | DEG              | MN SECS                 |                     | SHORT - PERIOD   | LONG - PERIOD      |
| ALPA         | Alaska                     | 65 14            | 00.0 N<br>147 44 36.0 W | 626                 | None             | 31300              |
| CPSO         | McMinnville,<br>Tennessee  | 35 35            | 41.4 N<br>085 34 13.5 W | 574                 | 6480 V<br>7515 H | SL210 V<br>SL220 H |
| FN-WV        | Franklin,<br>West Virginia | 38 32            | 58.0 N<br>079 30 47.0 W | 910                 | KS36000          | KS36000            |
| LASA         | Billings,<br>Montana       | 46 41            | 19.0 N<br>106 13 20.0 W | 744                 | HS10             | 7505A V<br>8700C H |
| HN-ME        | Houlton,<br>Maine          | 46 09            | 43.0 N<br>067 59 09.0 W | 213                 | 18300            | SL210 V<br>SL220 H |
| NORSAR       | Kjeller,<br>Norway         | 60 49            | 25.4 N<br>010 49 56.5 E | 379                 | HS10             | 7505A V<br>8700C H |
| RK-ON        | Red Lake,<br>Ontario       | 50 50            | 20.0 N<br>093 40 20.0 W | 366                 | 18300            | SL210 V<br>SL220 H |
| WH2YK        | White Horse,<br>Yukon      | 60 41            | 41.0 N<br>134 58 02.0 W | 853                 | 18300            | SL210 V<br>SL220 H |

# HYPOCENTER DETERMINATION

INPUT FOR EVENT 3 JUN 75  
14:40:00.0 37.000N 116.000W 0KM.

| STA.  | ARRIVAL    | RESIDUALS |      | DIST. | AZ.   |
|-------|------------|-----------|------|-------|-------|
|       |            | CALC      | REST |       |       |
| LAC   | 14 42 52.7 | -0.1      | -0.0 | 12.0  | 34.4  |
| RK-ON | 14 44 45.8 | 0.1       | -0.0 | 21.0  | 42.3  |
| CPC   | 14 45 21.8 | -0.0      | 0.2  | 24.5  | 84.4  |
| WH2YK | 14 45 39.4 | 0.1       | 0.3  | 26.4  | 339.0 |
| PN-WV | 14 46 00.0 | -0.1      | -0.1 | 28.7  | 76.0  |
| HN-ME | 14 47 08.1 | 0.4       | 0.2  | 36.5  | 60.3  |
| NAC   | 14 51 32.5 | -0.3      | -0.6 | 73.2  | 24.2  |

## 67 HERRIN TRAVEL TIME TABLES

| ORIGIN     | LAT.    | LONG.    | DEPTH (KM) | SDV | IT | STA |
|------------|---------|----------|------------|-----|----|-----|
| 14:40:05.9 | 37.268N | 115.951W | 25. CALC   | 0.2 | 3  | 7   |
| 14:40:01.7 | 37.172N | 116.024W | 0. REST    | 0.3 | 2  | 7   |

| CALC  |     |   |   | REST  |     |   |   |
|-------|-----|---|---|-------|-----|---|---|
| 1 . 1 |     |   |   | 1 . 1 |     |   |   |
| 0     | .   | 0 |   | 0     | .   | 0 |   |
| 0     | 0.3 | 2 |   | 0     | 0.3 | 2 |   |
| .     | .   | . | . | .     | .   | . | . |
| 0     | 0.0 | 0 | 0 | 0     | 0.0 | 0 | 0 |
| 0     | .   | 0 |   | 0     | .   | 0 |   |
| 0.0   |     |   |   | 0.0   |     |   |   |

CHI2 COVERAGE ELLIPSE: 95 PER CENT CONF..LEVEL, SDV= 1.69  
MAJOR 61.5KM. MINOR 37.9KM. AZ= 31 AREA= 7321 SQ.KM. REST

# DATA SUMMARY

INPUT FOR EVENT 3 JUN 75  
14:40:00.0 37.000N 116.000W 0KM.

| STA.  | PHASE | ARRIVAL |            | INST | PER  | A/T   | MAGNITUDE |      | DIP | DIST |
|-------|-------|---------|------------|------|------|-------|-----------|------|-----|------|
|       |       | TIME    |            |      |      |       | MB        | MS   |     |      |
| LAC   | M     | EP      | 14 42 52.7 | AB   | 1.2  | 137.  | 5.94      |      |     | 12.0 |
| LAC   |       | LR      | 14 47 48.0 | LPZ  | 13.0 | ??    |           |      |     | 12.0 |
| RK-ON |       | EP      | 14 44 45.8 | SPZ  | 0.9  | 1064. | 5.83      |      |     | 21.0 |
| RK-ON |       | LR      | 14 53 24.0 | LPZ  | 15.0 | 173.  |           | 4.68 |     | 21.0 |
| CFC   |       | EP      | 14 45 21.8 | SPZ  | 1.1  | 387.  | 5.69      |      |     | 24.5 |
| CFO   |       | LQ      | 14 53 30.0 | LPT  | 22.0 | 26.   |           |      |     |      |
| CPC   |       | LR      | 14 55 17.0 | LPZ  | 16.0 | 313.  |           | 5.01 |     | 24.5 |
| WH2YK |       | EP      | 14 45 39.4 | SPZ  | 0.9  | 42.   | 4.77      |      |     | 26.4 |
| WH2YK |       | LQ      | 14 54 53.0 | LPT  | 20.0 | 21.   |           |      |     |      |
| WH2YK |       | LR      | 14 57 04.0 | LPZ  | 17.0 | 119.  |           | 4.62 |     | 26.4 |
| FN-WV |       | EP      | 14 46 00.0 | SPZ  | 1.1  | 45.   | 4.95      |      |     | 28.7 |
| FN-WV |       | LQ      | 14 55 20.0 | LPT  | 24.0 | 22.   |           |      |     |      |
| FN-WV |       | LR      | 14 58 11.0 | LPZ  | 18.0 | 171.  |           | 4.81 |     | 28.7 |
| ALPA  |       | LR      | 15 01 35.0 | LAB  | 17.0 | 19.   |           | 3.90 |     | 33.7 |
| HN-ME |       | EP      | 14 47 08.1 | SPZ  | 1.0  | 203.  | 5.56      |      |     | 36.5 |
| HN-ME |       | LR      | 15 02 27.0 | LPZ  | 19.0 | ??    |           |      |     | 36.5 |
| NAO   |       | EP      | 14 51 32.5 | AB   | 1.2  | 140.  | 5.73      |      |     | 73.2 |
| NAO   |       | LR      | 15 22 39.0 | LAB  | 21.0 | 11.   |           | 4.03 |     | 73.2 |

| ORIGIN     | LAT.    | LONG.    | DEPTH (KM) | MAG  | SDV  | STA | LP MAG | LP SDV | LP STA |
|------------|---------|----------|------------|------|------|-----|--------|--------|--------|
| 14:40:05.9 | 37.268N | 115.951W | 25. CALC   | 5.39 | 0.46 | 6   | 4.34   | 0.4    | 4      |
| 14:40:01.7 | 37.172N | 116.024W | 0. REST    | 5.42 | 0.45 | 6   | 4.34   | 0.4    | 4      |

Short-period magnitudes ( $m_b$ ) used in averaging are restricted to those recorded at distances between 20 and 110 degrees from the epicenter.

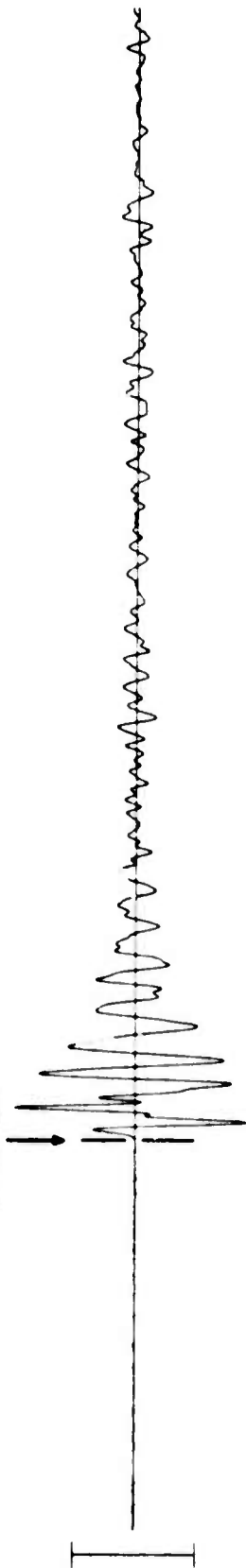
Average long-period magnitude ( $M_s$ ) is based on Rayleigh wave observations in the period range of 17 to 23 seconds per cycle.



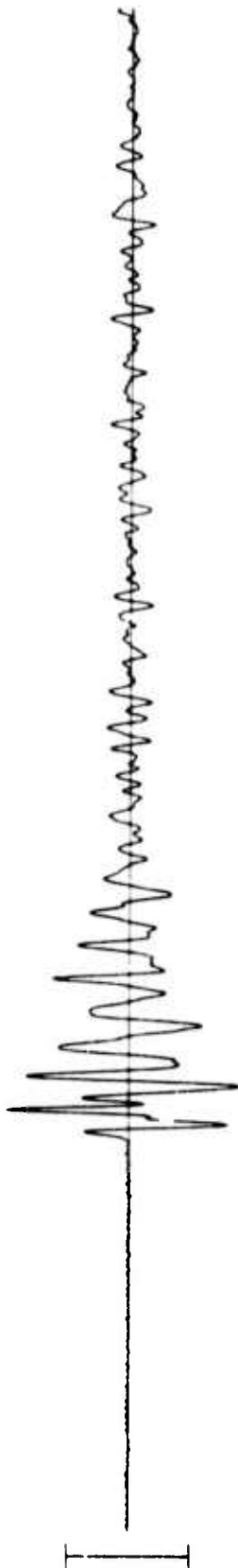
RK-ON 3 JUN 75

14:44:45.8

SPZ  
794.53 MHz



SPR  
570.34 MHz



SPT  
191.23 MHz



TIME



14:45:10

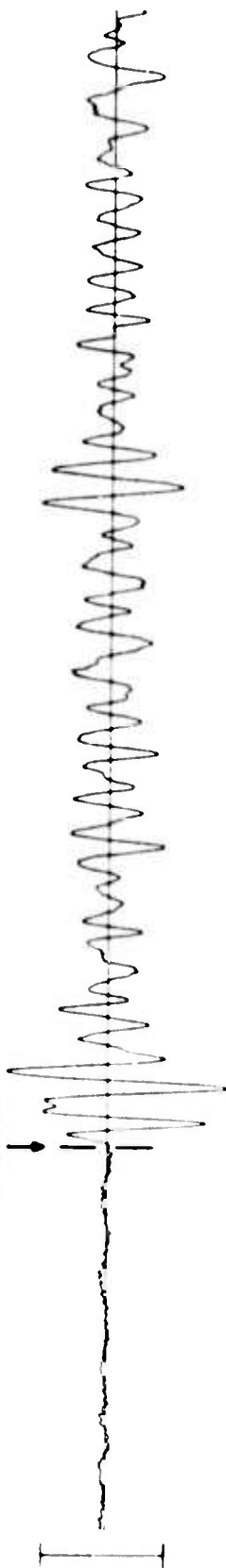
10 SEC

5.

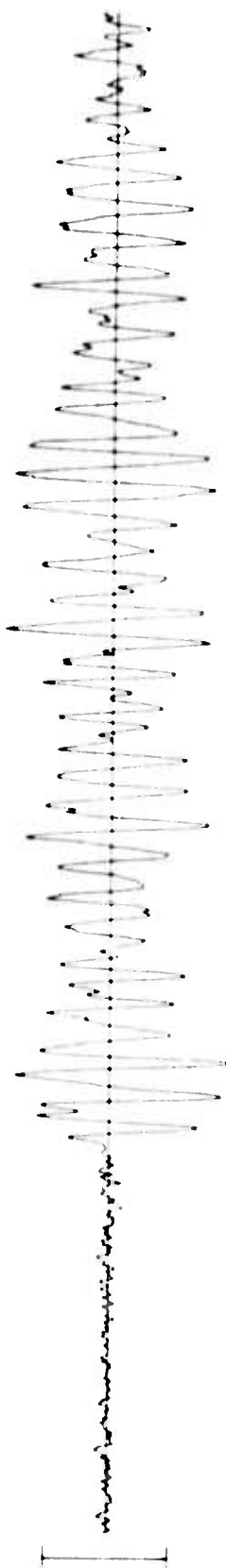
CPSO 3 JUN 75

SPZ  
208.77 Mμ

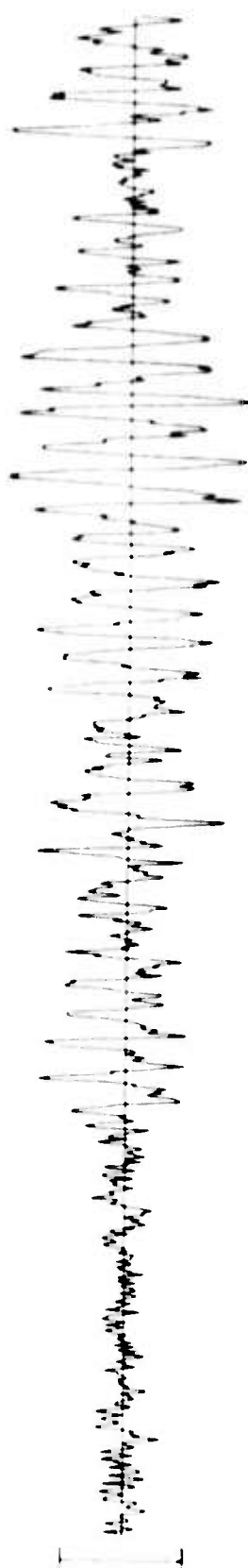
14:45:21.8



SPR  
40.33 Mμ



SPT  
50.78 Mμ



TIME

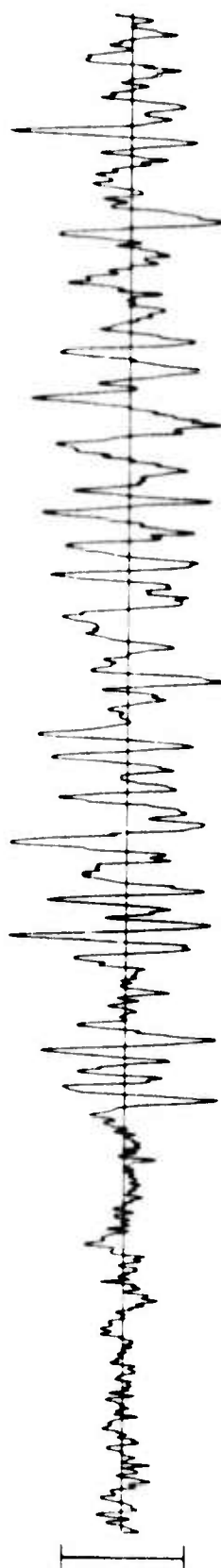
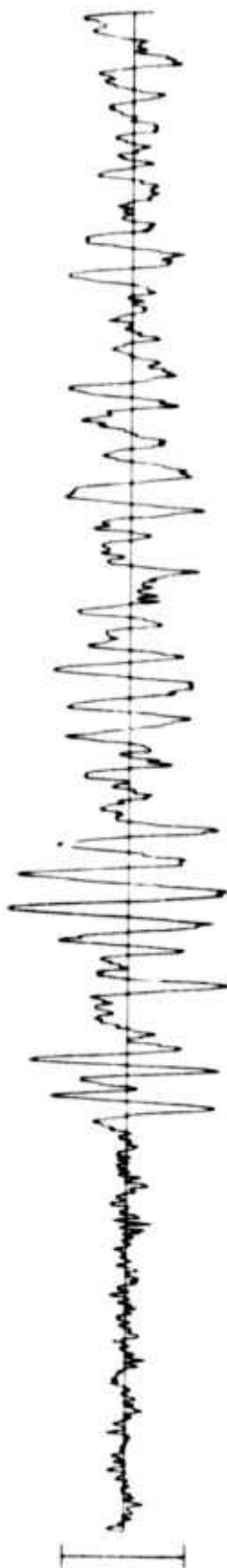
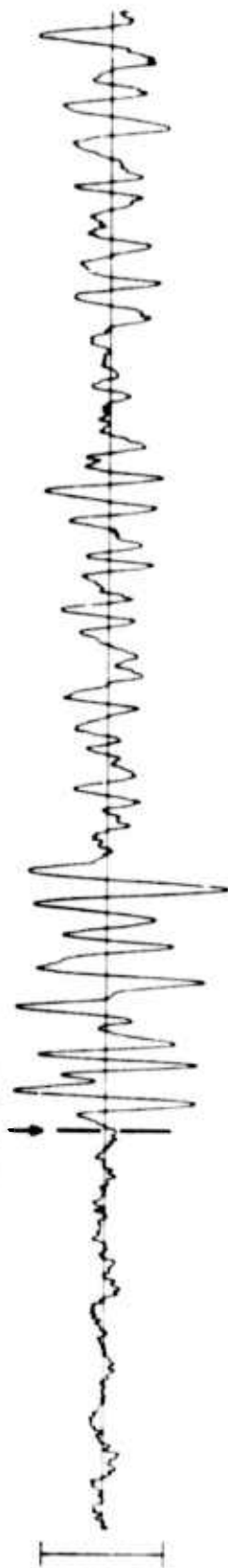


10 SEC

14:46:00

WH2YK 3 JUN 75

14:45:39.4



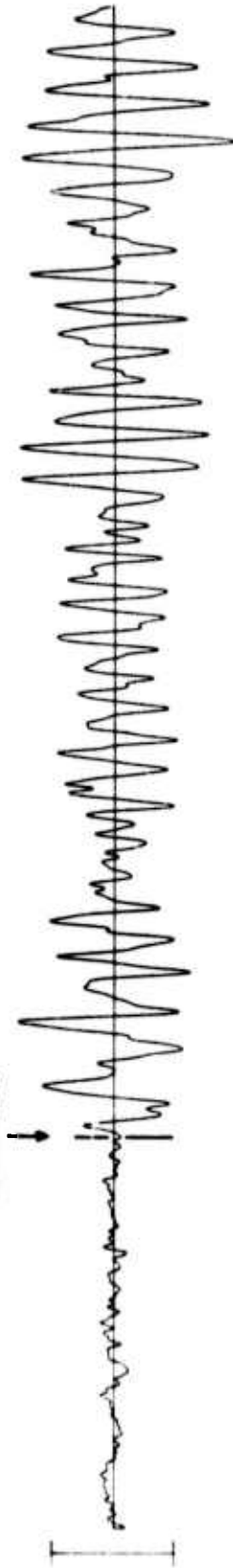
10 SEC

14:46:00

FN-WV 3 JUN 75

SPZ  
32.57 Mμ

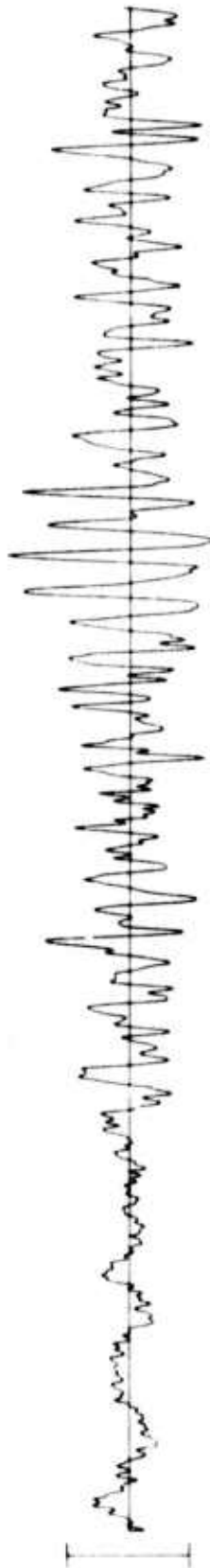
14:46:00.0



SPR  
21.19 Mμ



SPT  
23.99 Mμ



TIME



14:46:10

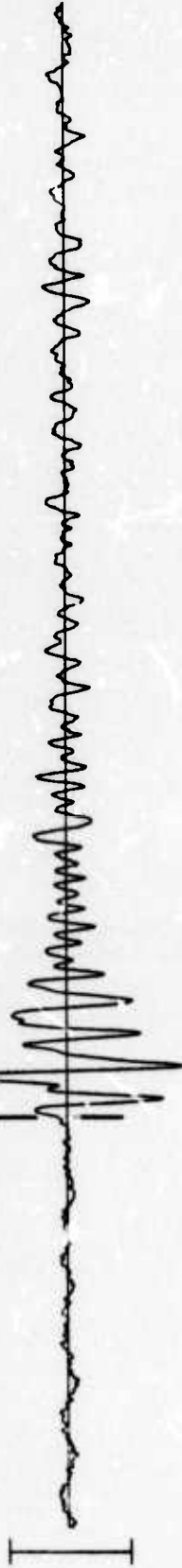
10 SEC

8.

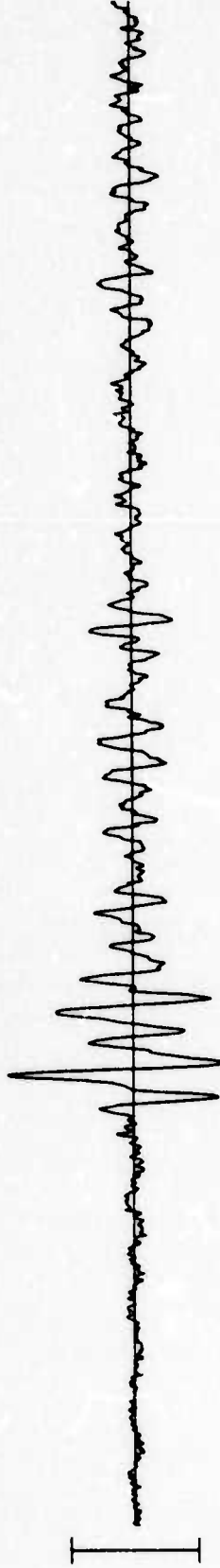
HN-ME 3 JUN 75

14:47:08.1

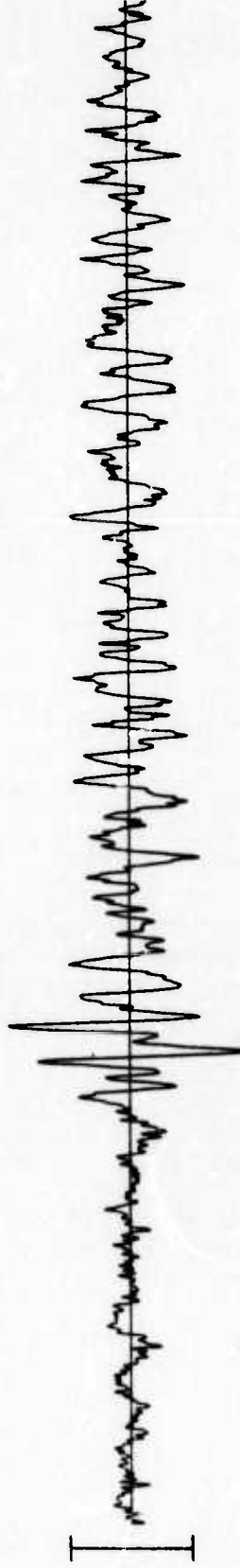
SPZ  
107.18 MHz



SPR  
87.80 MHz



SPT  
32.53 MHz



TIME



14:47:00

10 SEC

1 3 JUN 1975

2 14 40 0 37.0N 116.0W

3 14 42.52.0 LAO P

# LASA

OG D 5.0 40 CALIFORNIA-NEVEDA BORDER  
35.1 1.1 8.2 12.1 220.7

EPX 25428

BP-B 0.6-2.0 HZ

ABN 10

14:42:42.0

AB 96

FAB 92

PAB1 64

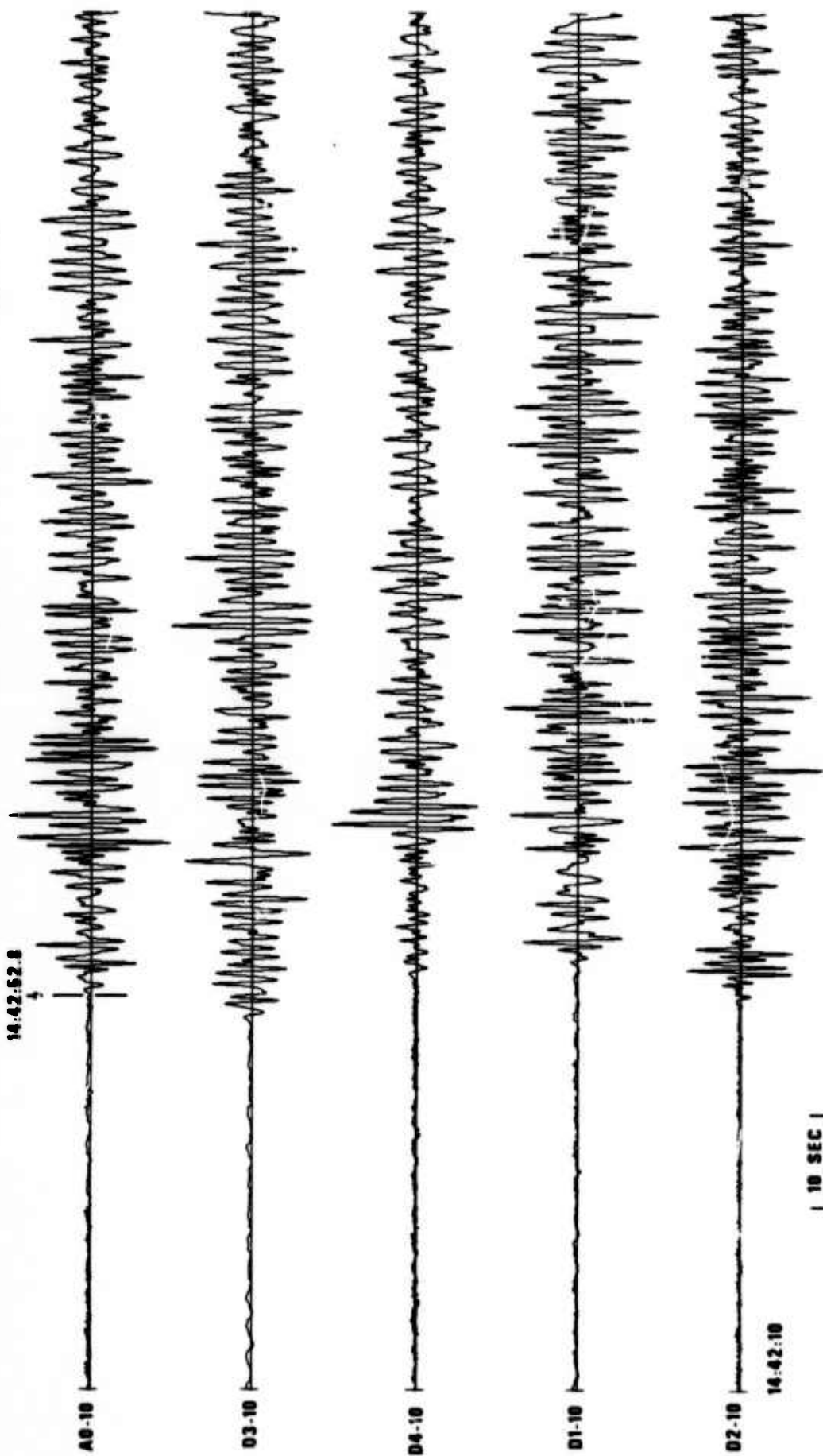
PAB2 50

PAB3 51

PAB4 54

10 SEC

LASA (INDIVIDUAL SHORT-PERIOD INSTRUMENTS) HIGH-GAIN SENSORS 3 JUN 75



(NO AMPLITUDE DETERMINATIONS MADE DUE TO UNRESOLVED SCALING PROBLEMS)



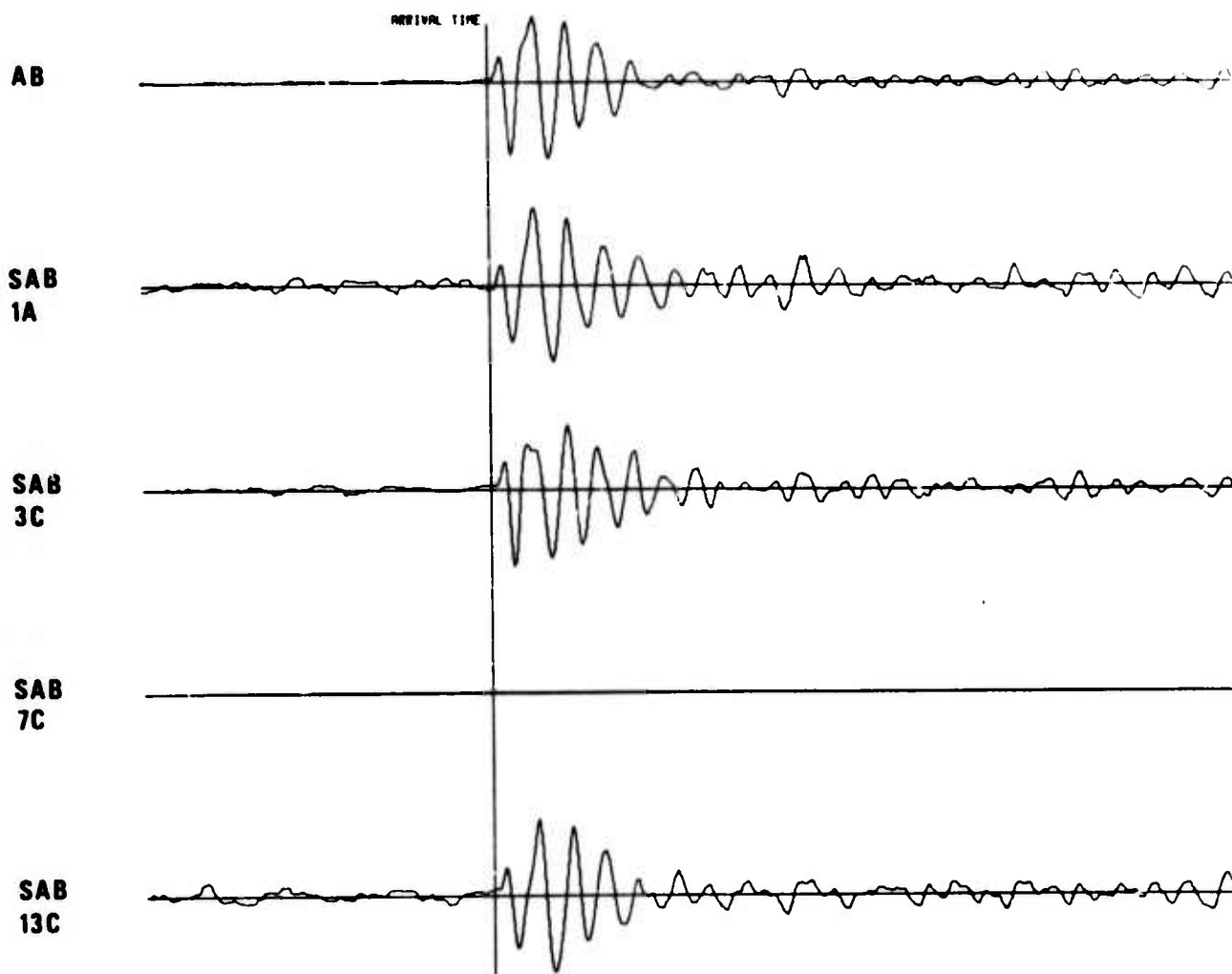
# NOFSAR EVENT FILE

1975 JUN 3

EPX NO. 1440 ARR. 14.51.32.4 38.2N 115.6W 5.4MB 33KM

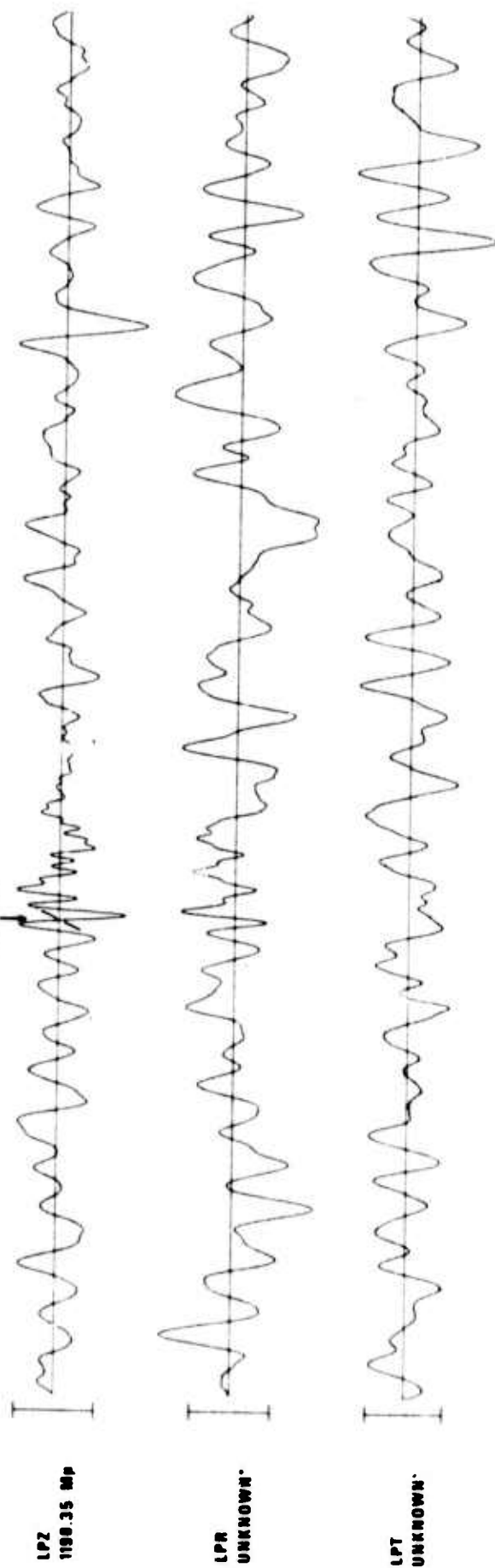
DIST = 72.1 AZI = 318.2 AMP = 56.4 PER = 1.3 UMETH 2

SCALE   = 5 SECONDS





RK-ON 3 JUN 75

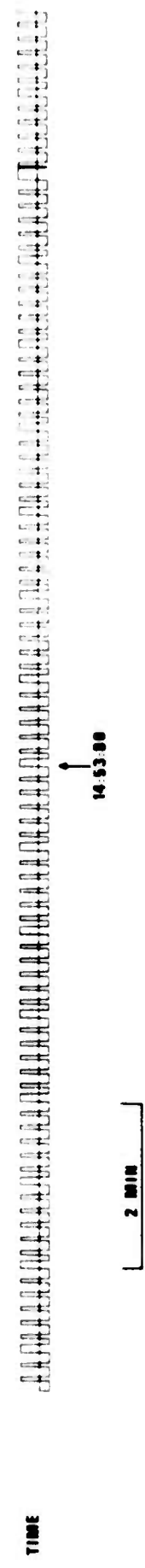
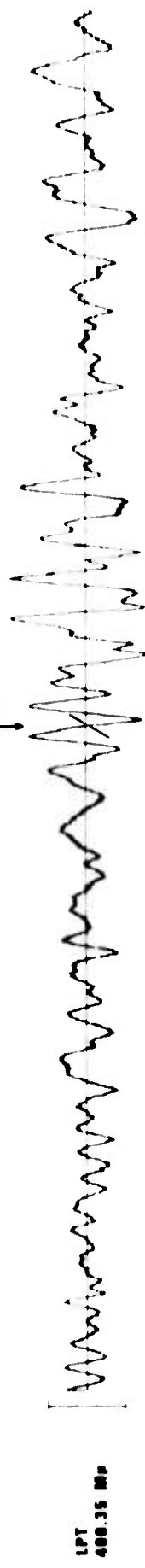
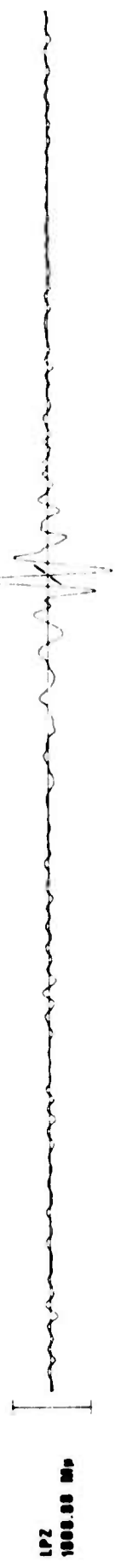


TIME



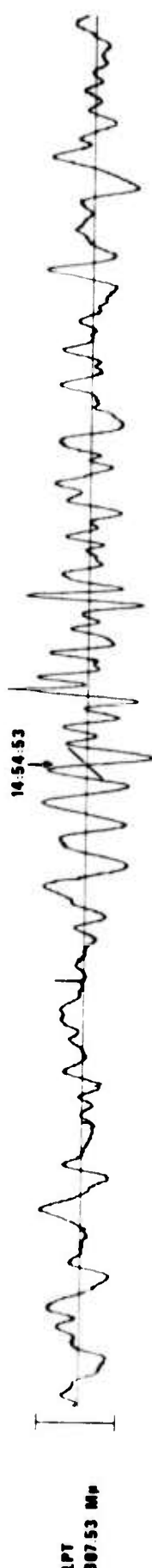
erratic calibrations

CP-SO 3 JUN 75



14.

WH2YK 3 JUN 75



TIME



2 MIN

14:55:00

15.

FN-WV 3 JUN 75

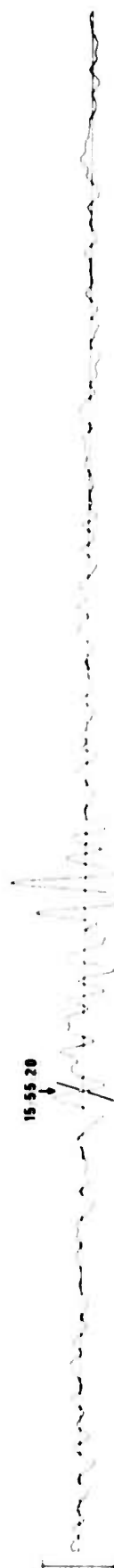
LPZ  
1303 57 MHz



LPH  
1057 52 MHz



LPT  
732 54 MHz



2 MIN

FLATTENING CAUSED BY  
SIMULTANEOUS PULSING  
ON HORIZONTAL INSTRUMENTS

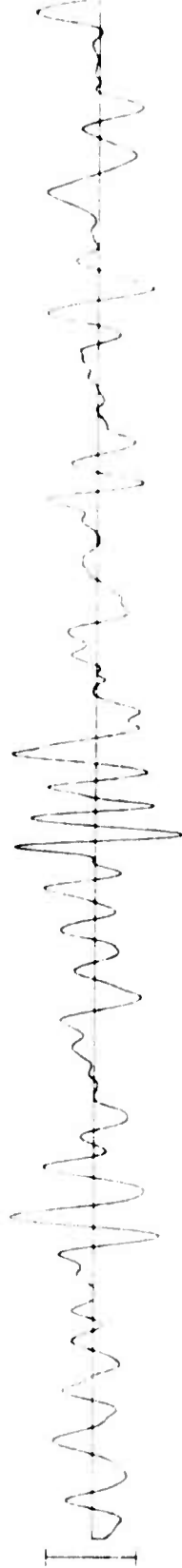
HN-ME 3 JUN 75

LPT  
UNKNOWN

15:02:27



LPT  
1100.03 MP



LPT  
359.07 MP

10:54:56

2 MIN



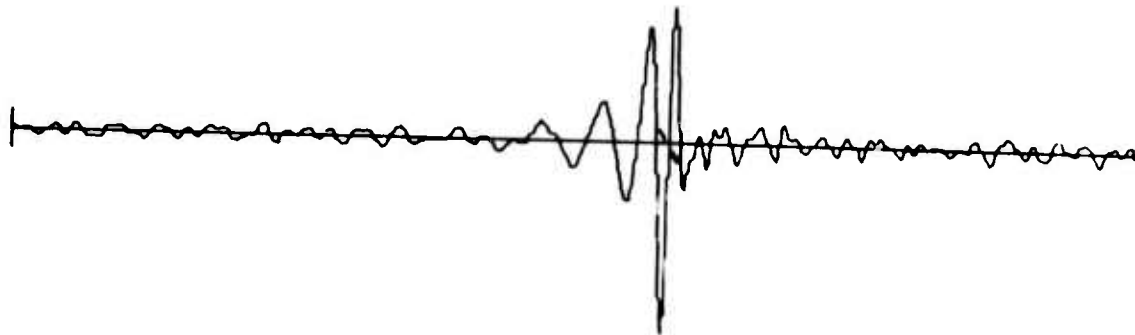
\*CALIBRATION QUESTIONABLE

**LASA C4 HIGH-GAIN SENSORS 3 JUN 75**

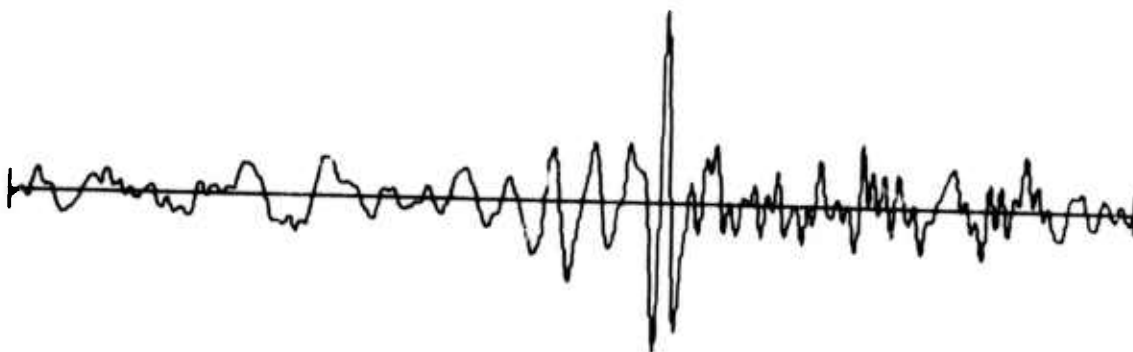
**14:47:48**



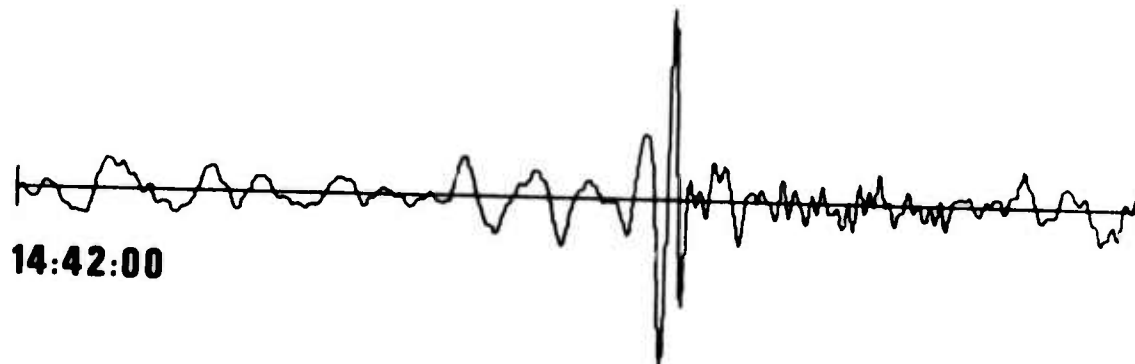
**LPZ**



**LPN**



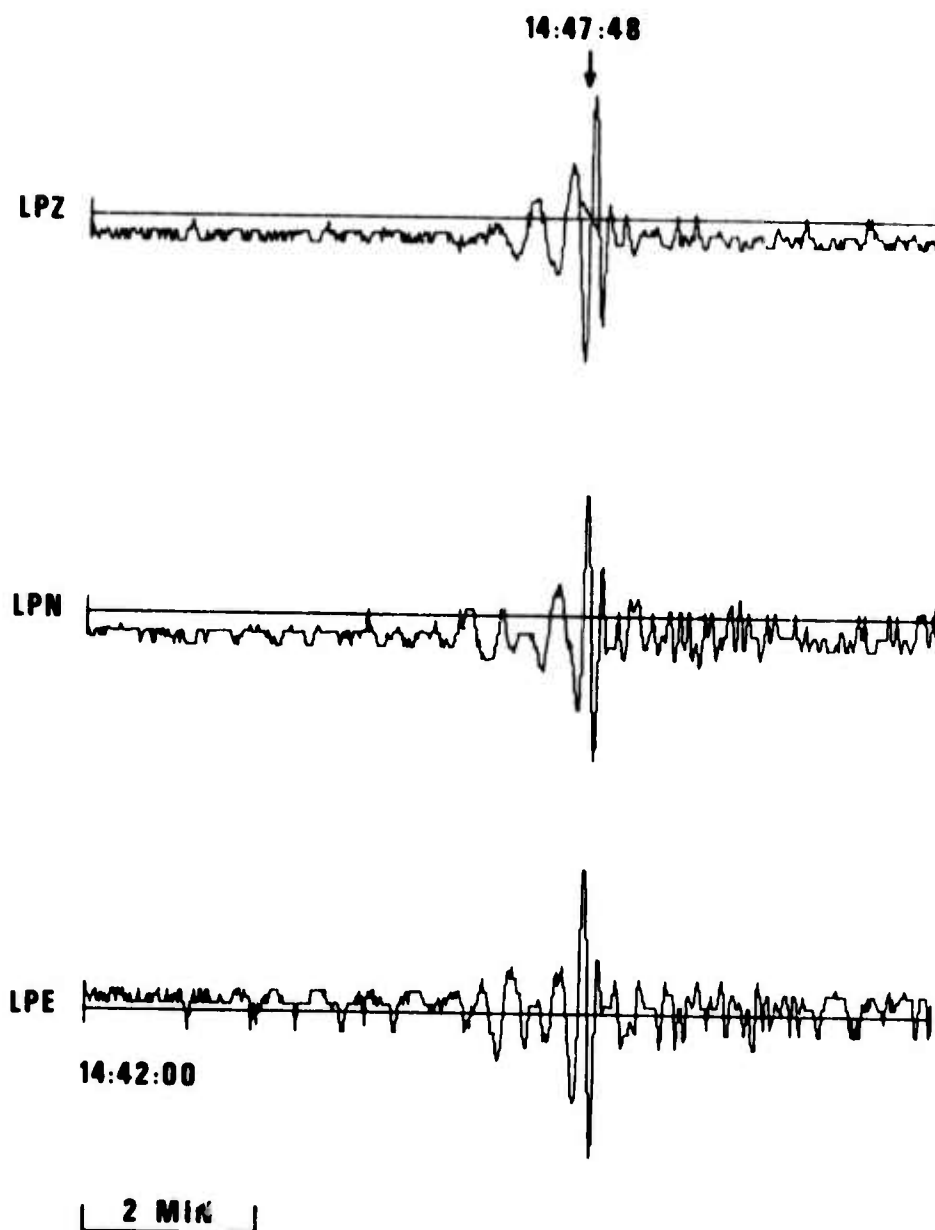
**LPE**



**14:42:00**

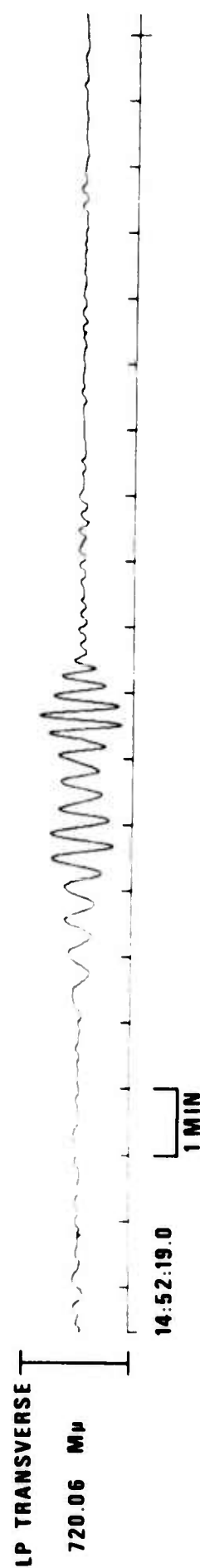
**2 MIN**

LASA C2 SUBARRAY PADDED SENSORS 3 JUN 75



(NO AMPLITUDE DETERMINATIONS MADE DUE TO UNRESOLVED SCALING PROBLEMS)

# ALPA LONG-PERIOD BEAMS 3 JUN 75





**NORSAR LONG-PERIOD BEAMS 3 JUN 75**

15:22:39

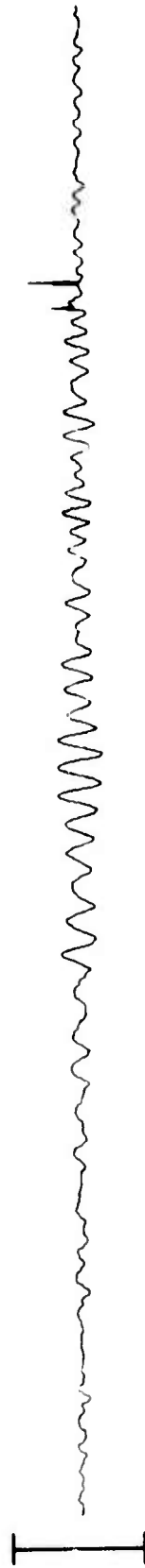
LP VERTICAL

305.08 Mμ



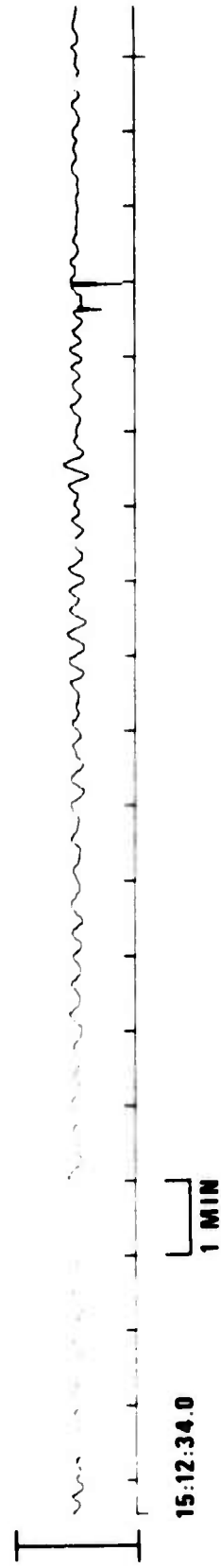
LP RADIAL

414.05 Mμ



LP TRANSVERSE

453.47 Mμ



21.